

Less is More

HOW BRICK AND MORTAR RETAILERS CAN RUN
PROFITABLE PROMOS

At a glance

Traditional brick and mortar retailers are under immense pressure due to the threat from Amazon and are often trying to compete by putting many items on attractive promos. However, around thirty percent of such promos often turn out to be toxic. Amazon uses sophisticated predictive analytics to take its decisions and B&M retailers should do the same.

The problem of predicting the impact of promotions is a particularly complex problem due to promos having multiple secondary effects. Also, the promotion decision making process in a retail organization is a complex process involving multiple stakeholders, and their incentives are not always aligned.

B&M retailers can win with promos with a three-pronged strategy :

Comprehensive Analytics

Make sure all promo effects are forecast with a high degree of accuracy.

Robust Process

Retailers need a tool which can simulate different promo scenarios and enables multiple stakeholders to collaborate.

Careful Governance

Siloed and gut-feel based decision making often results in toxic promos - leadership needs to stop this.

THE AMAZON THREAT IS REAL

Amazon's steady rise in recent times has left many a traditional retailer jittery. With Amazon's acquisition of Whole Foods Market and its opening of physical bookstores, the challenge is mounting with every passing day. Retailers of all hues are feeling the heat, with even specialty retailers not being outside the threat zone. Amazon's mastery of limitless quantity of customer data and hence its ability to personalize, places it at an advantage compared to traditional retailers.

EMBATTLED RETAILERS ARE RUNNING TOXIC PROMOS TO FEND OFF

Traditional retailers are trying to woo customers with deep discounts in an attempt to fend off this challenge. If done wisely, promotions can indeed add to the bottom line. However, our experience across retailers shows that up to thirty percent of promotions could in fact be toxic – making less money than the baseline situation. This happens when the margin depletion due to discounting is not adequately made up by a sales lift. The problem is particularly acute in promotion-inelastic items – retailers do not get much sales lift in exchange of the discount, effectively booking the entire discount money as loss. This can happen in different types of items :

- Certain essentials can show this pattern if the clientele is somewhat captive and discount does not help to bring customers away from competitors.
- In certain items, customers might not be adequately motivated by a small discount if that item does not represent a sizeable share of their budget.
- In some other cases, discretionary / indulgence purchases show this pattern – customers might be more concerned about product attributes in these cases rather than pricing.

Promotion elasticity depends on a multitude of factors which are not always easy to anticipate.

BUT RETAILERS CAN RUN PROFITABLE PROMOS IF THEY FORECAST CORRECTLY

It is not that traditional retailers do not have a way out. The solution lies in being able to use data to make decisions. Retailers need to accurately forecast the impact of proposed promotions and only run those promotions which will add to margin. They absolutely need to be able to identify items which are not going to get an adequate lift from the discounting and save the margin loss. Our work with several retailers have shown that being able to take accurate, data based decisions on promotions could help a typical retailer with 30-40% overall gross margin to improve margin percentage by up to 1-2 percentage points. Less is more here, as about half of the value comes from avoiding toxic promos, with the other half coming from making good promos better.

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CHALLENGE 1: THE FORECASTING IS TOUGH

However, the forecasting is not an easy problem. It is essentially a sales forecasting problem under conditions of promotion. Many retailers try to use spreadsheet-based simple tools to do this forecasting. Such attempts are thwarted due to the following issues :

1. Promotions have many secondary effects

Sales lift due to promotions is the effect that meets the eye. Hidden in the sales data are the following effects:

a. Cannibalization: While the promotion might apparently boost margin for the promoted product, it might deplete sales for a similar product and worse still, that product might have a higher margin. In our work with a specialty retailer, we found that competing brands of a specialty grocery item always cannibalized each other in promos as customers were highly prone to brand switching. Another retailer saw that promoting entertainment hardgoods of a more premium electronic variety cannibalized sales of the basic variety. Another kind of cannibalization is the cannibalization of the same item in a future period—known as **pull-forward / pantry-loading effect**. No retailer can ignore this effect and needs to discover this from their data.

b. Halo: There might be loss leader items which help to boost sales of other items. This might be due to the other items being complements or the promoted item drawing footfalls to the store and boosting sales across categories. In our work with a specialty retailer, we found that it made sense for the retailer to tolerate some degree of margin loss on one small category as this generated a very profitable follow-up sales stream of supplies and hardgoods which are needed once that category is bought.

Cannibalization is observed in categories as diverse as specialty grocery and entertainment hardgoods... no retailer can ignore this effect

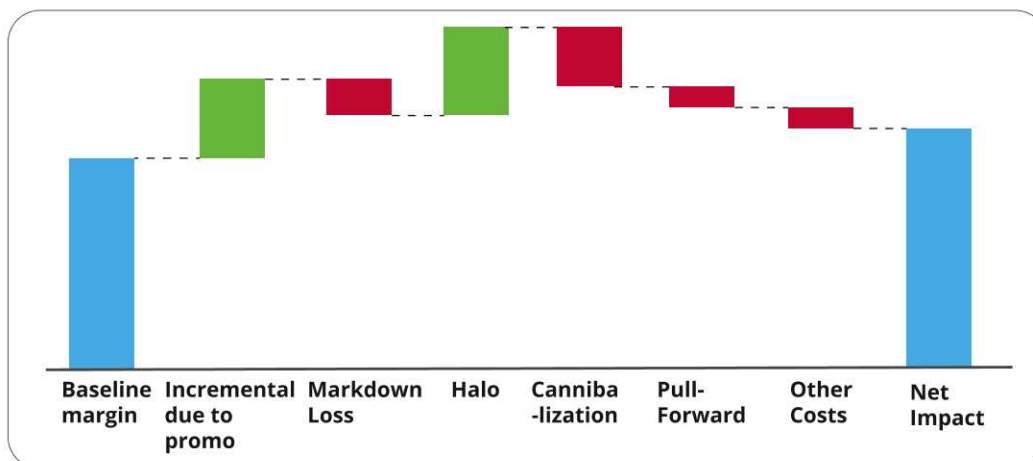


Exhibit 1: A holistic picture of impact of a promotion across multiple factors

2. Marketing and operational spends need to be attributed

With multiple marketing channels, often attributing the 'truly incremental' marketing spend for a particular promotion item requires careful calculations and estimations. Retailers also incur operational costs for running promotions, which need to be taken into account.

3. History does not hold all the answers

Even those retailers who have a system to account for the two complexities above, struggle to estimate the impact of a potential promotion in a newly introduced item or in an item that is being promoted for the first time or is being promoted at a discount level not seen earlier.

CHALLENGE 2 : MANY STAKEHOLDERS AND DIFFICULT GOVERNANCE

There are many stakeholders who get involved in the promotion decision making process. These stakeholders have different, and in some cases, opposing incentives.

STAKEHOLDER	GOALS	DECISION LEVERS
Vendor	<ul style="list-style-type: none"> ■ Get own brand on promo and cannibalize other brands ■ Minimize vendor funding and maximize retailer funding of promos 	<ul style="list-style-type: none"> ■ Vendor funding dollars ■ Other marketing support
Category Merchant	<ul style="list-style-type: none"> ■ Maximize performance for own category ■ Maximize vendor funding and minimize retailer funding in own category 	<ul style="list-style-type: none"> ■ Retailer funding dollars ■ Choosing brands to promote
Merchandizing Head	<ul style="list-style-type: none"> ■ Maximize performance for entire portfolio ■ Maximize vendor funding and minimize retailer funding at overall level 	<ul style="list-style-type: none"> ■ Retailer funding budget ■ Choosing overall promo portfolio
Marketing	<ul style="list-style-type: none"> ■ Coherent messaging ■ Improve marketing Rol 	<ul style="list-style-type: none"> ■ Marketing investment on promos
Finance	<ul style="list-style-type: none"> ■ Maintain budgets and track performance 	<ul style="list-style-type: none"> ■ Marketing and promotion budgets

Promotion decision making involve many stakeholders ... often with **misaligned incentives**

As we see from the above, individual vendors' incentives are not aligned to category merchants' incentives. Then, a specific category merchant will want to promote own category and devote more marketing resources. The merchandizing head might have a view of an overall optimized promo portfolio based on promo impact elasticities that Marketing feels is not good enough to create a coherent marketing story. This leads to a lot of negotiations between vendors and merchants and between merchants and Marketing. Most of such negotiations can be quickly concluded if data-based answers are readily available.

RETAILERS NEED A COMPREHENSIVE DATA SCIENCE SOLUTION TO MANAGE PROMOS

Retailers need a complete solution to manage promotions - a software application (not spreadsheet tool) with following features:

Predictive Analytics : Highly accurate estimation of promotion impact along with secondary effects needs a wise mix of machine learning algorithms and coded business judgment rules. Ensemble forecasting performs well - items with sufficient history are predicted well by linear or Poisson regression models with necessary variable engineering and regularization; items with sparse history are often predicted well (after pooling) by 'black-box' neural net, XGBoost etc. models. To handle new and sparse history items, item similarity analysis is done by using feature models and Natural Language Processing on item descriptions. The system needs to simulate different promo states (i.e. different discount percentages or marketing modes) - models are converted to APIs using cloud infra and server-less cloud functions

Intuitive and Comprehensive Workflow: The application needs the following features:

- Allows vendors to submit proposed promos, vendor funding and marketing support (the application can be made to nudge vendors for greater funding)
- Allow merchants to simulate the promos with different price points and marketing support - the application provides forecast of expected impact under simulation conditions, and enables selection of best configuration and rejection of toxic promos
- Allows merchandizing head to look at the entire portfolio and ensure overall targets are met
- As different merchants would 'apply' for same marketing resources (i.e. front page on the circular), the tool shows which promo will benefit how much from a certain marketing and allows allocation of resources
- Reports the impact metrics of the promos during and after execution



Exhibit 2: Ideal functional workflow of promo management application

CASE STUDY 1: PROMOTION FORECASTING ENSEMBLE AT A BUSINESS SERVICES PLAYER

We developed a promotion forecasting solution for a top - three business services player. There were severe challenges with the data requiring a highly hybrid approach combining machine learning algorithms and business rules :

- Information about promotions was spread across various datasets i.e. separate dataset for coupon code redemptions. These datasets were harmonized.
- Many promos would run in parallel, making it difficult for predictive models to attribute impact to individual promos – business rules were applied on results obtained from ML models to align results to business reality.
- An ensemble of linear and log-linear regression was used. Initially an ensemble was built using several other algorithms like tree-based and neural net models but these were later rejected as the gain in predictive value was not sufficient to introduce ‘black-box’ models.

CASE STUDY 2: PROMOTION MANAGEMENT APPLICATION DESIGN FOR A BIG BOX ENTERTAINMENT HARDGOODS RETAILER

We developed a predictive promotion management application for a category leader retailer. A basic modular application was customized in the following manner to blend into the retailer’s workflow:

- While proposing promotions, merchants could filter for items which have not been on promo in the last few months, as per the organization’s promotion strategy.
- Promotions could be created in different configurations – like buy 2 get 1, percentage off a bundle and others (there were many complementary pairs in the retailer’s product basket, hence bundles were very relevant).
- Products were often released as an upgrade – hence there is a functionality to map new products to old products such that prediction of promos for newly released products can be read from the history of mapped old products.

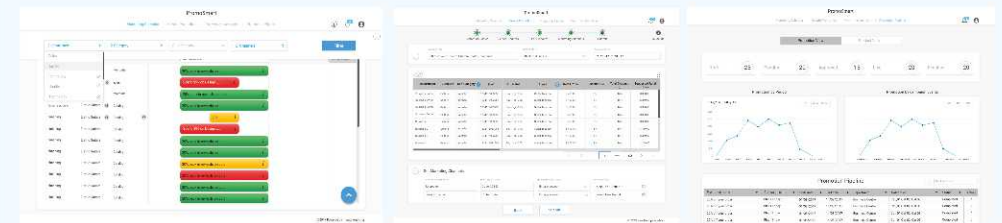
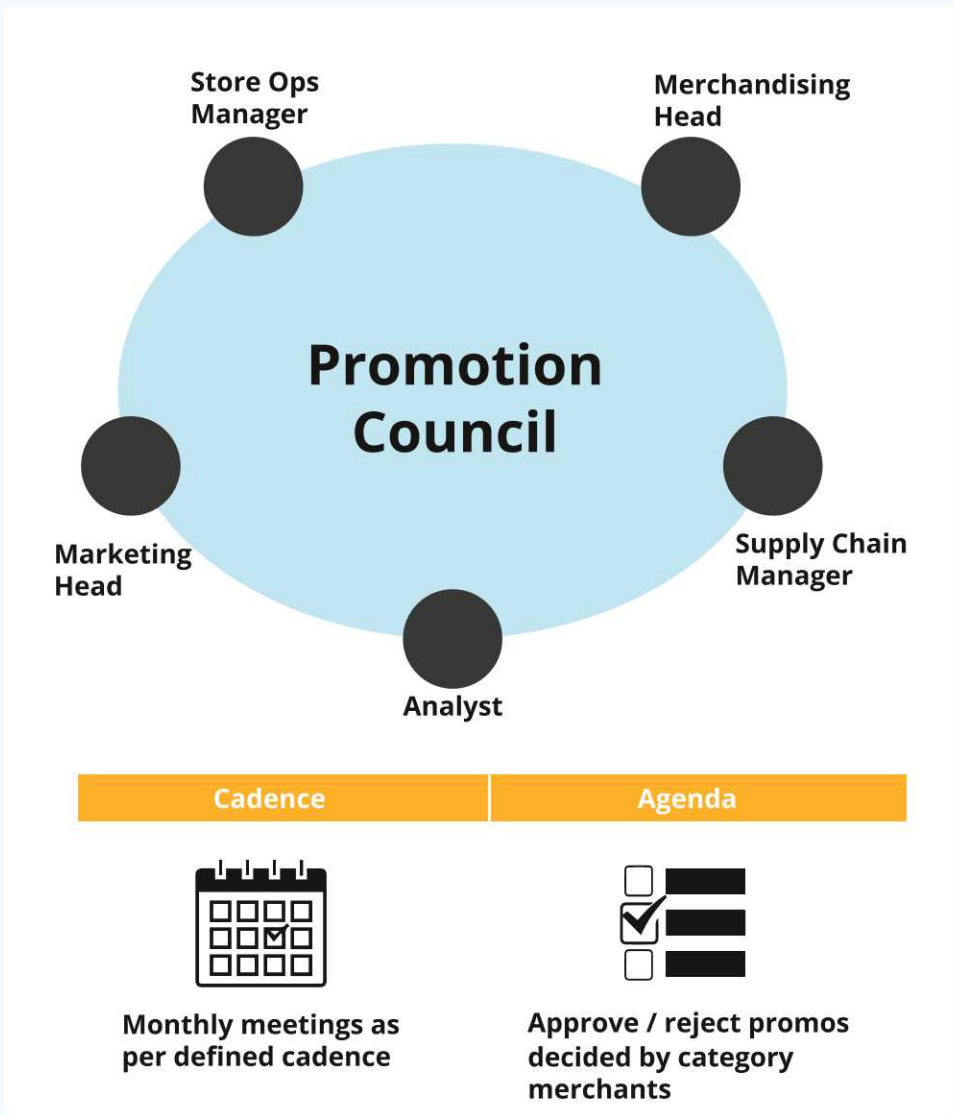


Exhibit 3 : Screenshots of Impact Analytics’ promo management application

Governance : It is also necessary to have a cross functional team to look at the entire portfolio of promotions that is planned for a certain period and do joint approvals. In our experience, a council consisting of merchandizing and marketing decision makers should approve the portfolio of promotions. Inclusion of Finance and Operations strengthens this council, and it might need the support of an analyst.

CASE STUDY 3: PROMOTION EFFECTIVENESS COUNCIL AT A SPECIALITY RETAILER

While we were building a predictive promotion management solution for a speciality retailer, one key need which was highlighted is the need to make promotion decisions through collaboration between merchandizing, marketing, supply chain and store operations departments. In absence of this, a promotion decision taken by merchandizing might not get adequately supported by marketing; or supply chain might not be able to ensure enough inventory. The following Promotion Council was set up for this purpose to govern promotions.



LESS IS MORE



At Impact Analytics, we conceptualize, develop and deploy 360 - degree data science solutions for data driven decision making. Our offerings span across forecasting, pricing and promotions management, consumer and marketing analytics, visualisation and reporting etc.

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